



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 5 CHICAGO REGIONAL LABORATORY
 536 SOUTH CLARK STREET
 CHICAGO, ILLINOIS 60605



Date: 7/25/2017

Subject: Review of Region 5 Data for Mid America Steel Drum, Inc.

To: RCRA, LCD, US EPA Region 5
 77 West Jackson Boulevard
 Chicago, IL 60604

From: Colin Breslin, Chemist
 US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X Col Breslin 7/25/2017

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Mid America Steel Drum, Inc.

 Data Coordinator and Date Transmitted

Analyses included in this report:

Water content, Karl Fisher Titration

Water content, Karl Fisher Titration



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD 05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

Analysis Case Narrative

General Information

Samples for the analysis of Corrosivity were received at the Chicago Regional Laboratory (CRL) on May 5, 2017, which requires that samples be 20% aqueous, therefore, Water Content determination was required to supplement the Corrosivity analysis. The Corrosivity results were reported separately. The samples were assigned across three CRL work orders, which are reported together in this report. The samples met the preservation requirement upon receipt. There is no mandatory holding time defined in the reference method. The designated analyst, Colin Breslin, can be reached at 312-886-2912.

The samples were prepared and analyzed according to CRL SOP AIG015 Version #3 (based on SW-846: 9000).

Note: Supporting data are archived with work order 1705002.

Sample Analysis and Results

The data reported herein meets the requirements of the CRL analytical SOP used for analysis and any laboratory specifications stated in the Land and Chemicals Division, Generic Quality Assurance Project Plan, dated April 19, 2017, for the site Mid-America Steel Drum, Inc. The QAPP is saved on the CRL share drive with file name: Mid America Steel Drum QAPP.pdf.

Sample with CRL identification number 1705002-05 solidified and was not amenable to testing for Water Content or Corrosivity because the sample turned solid upon handling and could not be dispensed into the testing apparatus.

Due to the extremely difficult sample matrices an exceptional amount of reagent was required for Water Content determinations. Additional reagent was ordered but vendor supplies were back ordered. Addition samples still require Water Content determination and will be reported as soon as the analyses are completed. This report contains the results that have been determined so far. The following list summarizes the status of Water Content and Corrosivity analyses:



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD 05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

| <u>CRL LIMS ID</u> | <u>Water Content</u> | <u>Corrosivity</u> |
|--------------------|--|--------------------|
| 1705002-01 | > 20% aqueous | Complete |
| 1705002-02 | < 20% aqueous | Not Applicable |
| 1705002-03 | > 20% aqueous | Complete |
| 1705002-04 | < 20% aqueous | Not Applicable |
| 1705002-05 | Not Testable | Not Testable |
| 1705002-06 | < 20% aqueous | Not Applicable |
| 1705002-07 | > 20% aqueous | Complete |
| 1705002-08 | < 20% aqueous | Not Applicable |
| 1705002-09 | < 20% aqueous | Not Applicable |
| 1705002-10 | < 20% aqueous | Not Applicable |
| 1705002-11 | < 20% aqueous | Not Applicable |
| 1705002-12 | < 20% aqueous | Not Applicable |
| 1705002-13 | Not testable, solid/soil sample | |
| | | |
| 1705003-01 | < 20% aqueous | Not Applicable |
| 1705003-02 | < 20% aqueous | Not Applicable |
| 1705003-03 | > 20% aqueous | Complete |
| 1705003-04 | > 20% aqueous | Complete |
| 1705003-05 | > 20% aqueous | Complete |
| 1705003-06 | > 20% aqueous | Complete |
| 1705003-07 | > 20% aqueous | Complete |
| 1705003-08 | > 20% aqueous | Complete |
| | | |
| 1705004-01 | Sample evaporated at time of receipt | |
| 1705004-02 | to be tested | |
| 1705004-03 | to be tested | |
| 1705004-04 | to be tested | |
| 1705004-05 | to be tested | |
| 1705004-06 | to be tested | |
| 1705004-07 | > 20% aqueous | Complete |
| 1705004-08 | to be re-tested, > 20% aqueous but ran out of reagent before completing duplicate analysis | Complete |
| 1705004-09 | Not testable, solid/soil sample | |
| 1705004-10 | Not testable, solid/soil sample | |



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD 05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

Sample with CRL identification number 1705002-01 was reported to have a water content of 100.8%. Its duplicate result was 95.9% water content, which was within the quality control limit of 10% relative percent difference (RPD) at 4.98% RPD. Therefore, a result which was greater than 100% was likely due to slight variation in the balance, titrant volume dispensed, or minor fluctuation in electrode response. Any of which could contribute a slight bias in measurement error to exceed 100%. Therefore, sample 1705002-01 was considered to have nearly 100% water content, which certainly exceeds the 20% threshold for making a valid measurement of Corrosivity. The result remains reported as 100.8% water content.

Quality Control

All Quality Control (QC) audits were within CRL limits for the requested analytes or did not result in qualification of the data, except as follows:

Batch QC Duplicates:

Sample with CRL identification number 1705002-04 was reported at 0.5% water content and its duplicate result was 0.34% water content, which exceeded the QC limit of 10% relative percent difference (RPD) at 38.1% RPD. Sample results at and slightly below the reporting limit are inherently more uncertain. Therefore, the sample result for 1705002-04 was reported with a data qualifier flag as estimated. The result is considered valid that the sample result was below the 20% aqueous threshold for Corrosivity, which was not measured.

Sample with CRL identification number 1705003-05 was reported at 27.3% water content and its duplicate result was 31.9% water content, which exceeded the QC limit of 10% relative percent difference (RPD) at 15.6% RPD. Therefore, the sample result for 1705003-05 was reported with a data qualifier flag as estimated. The result is considered valid that the sample result was above the 20% aqueous threshold for Corrosivity determination.



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD 05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------|---------------|--------|-----------------|-----------------|
| OCS-01 | 1705002-01 | Other | May-04-17 12:55 | May-05-17 07:50 |
| OCS-02 | 1705002-02 | Other | May-04-17 13:11 | May-05-17 07:50 |
| OCS-03 | 1705002-03 | Other | May-04-17 13:35 | May-05-17 07:50 |
| OCS-04 | 1705002-04 | Other | May-04-17 14:10 | May-05-17 07:50 |
| OCS-06 | 1705002-06 | Other | May-04-17 14:37 | May-05-17 07:50 |
| OCS-07 | 1705002-07 | Other | May-04-17 14:50 | May-05-17 07:50 |
| OCS-08 | 1705002-08 | Other | May-04-17 15:01 | May-05-17 07:50 |
| OCS-09 | 1705002-09 | Other | May-04-17 15:12 | May-05-17 07:50 |
| OCS-10 | 1705002-10 | Other | May-04-17 15:20 | May-05-17 07:50 |
| OCS-10 DUP | 1705002-11 | Other | May-04-17 15:20 | May-05-17 07:50 |
| OCS-11 | 1705002-12 | Other | May-04-17 15:37 | May-05-17 07:50 |
| CS-01 | 1705003-01 | Other | May-04-17 11:48 | May-05-17 07:50 |
| CS-02 | 1705003-02 | Other | May-04-17 12:31 | May-05-17 07:50 |
| CS-03 | 1705003-03 | Other | May-04-17 12:35 | May-05-17 07:50 |
| CS-04 | 1705003-04 | Other | May-04-17 13:02 | May-05-17 07:50 |
| CS-05 | 1705003-05 | Other | May-04-17 13:12 | May-05-17 07:50 |
| CS-06 | 1705003-06 | Other | May-04-17 13:29 | May-05-17 07:50 |
| CS-07 | 1705003-07 | Other | May-04-17 13:55 | May-05-17 07:50 |
| CS-08 | 1705003-08 | Other | May-04-17 14:15 | May-05-17 07:50 |
| SFS08 | 1705004-07 | Other | May-04-17 15:10 | May-05-17 07:50 |



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD-05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

Water Content by SW846 Method 9000 US EPA Region 5 Chicago Regional Laboratory

OCS-01 (1705002-01) Matrix: Other Sampled: May-04-17 12:55 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 100.8 | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

OCS-02 (1705002-02) Matrix: Other Sampled: May-04-17 13:11 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | U | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

OCS-03 (1705002-03) Matrix: Other Sampled: May-04-17 13:35 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 62.1 | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

OCS-04 (1705002-04) Matrix: Other Sampled: May-04-17 14:10 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 0.5 | J | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

OCS-06 (1705002-06) Matrix: Other Sampled: May-04-17 14:37 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | U | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

OCS-07 (1705002-07) Matrix: Other Sampled: May-04-17 14:50 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 99.0 | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

OCS-08 (1705002-08) Matrix: Other Sampled: May-04-17 15:01 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 13.7 | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

OCS-09 (1705002-09) Matrix: Other Sampled: May-04-17 15:12 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 2.4 | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD-05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

Water Content by SW846 Method 9000 US EPA Region 5 Chicago Regional Laboratory

OCS-10 (1705002-10) Matrix: Other Sampled: May-04-17 15:20 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | U | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

OCS-10 DUP (1705002-11) Matrix: Other Sampled: May-04-17 15:20 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | U | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

OCS-11 (1705002-12) Matrix: Other Sampled: May-04-17 15:37 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 8.6 | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

CS-01 (1705003-01) Matrix: Other Sampled: May-04-17 11:48 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 18.4 | | | 0.5 | % | 1 | B17F024 | Jun-15-17 | Jun-15-17 |

CS-02 (1705003-02) Matrix: Other Sampled: May-04-17 12:31 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | U | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

CS-03 (1705003-03) Matrix: Other Sampled: May-04-17 12:35 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 38.8 | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

CS-04 (1705003-04) Matrix: Other Sampled: May-04-17 13:02 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 54.2 | | | 0.5 | % | 1 | B17F023 | Jun-14-17 | Jun-14-17 |

CS-05 (1705003-05) Matrix: Other Sampled: May-04-17 13:12 Received: May-05-17 07:50

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Water content | 27.3 | J | | 0.5 | % | 1 | B17F024 | Jun-15-17 | Jun-15-17 |

CS-06 (1705003-06) Matrix: Other Sampled: May-04-17 13:29 Received: May-05-17 07:50



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD-05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

Water Content by SW846 Method 9000 US EPA Region 5 Chicago Regional Laboratory

| CS-06 (1705003-06) | | Matrix: Other | Sampled: May-04-17 13:29 | | Received: May-05-17 07:50 | | | | |
|--------------------|--------|-----------------------|--------------------------|--------------------|---------------------------|----------|---------|-----------|-----------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
| Water content | 92.8 | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

| CS-07 (1705003-07) | | Matrix: Other | Sampled: May-04-17 13:55 | | Received: May-05-17 07:50 | | | | |
|--------------------|--------|-----------------------|--------------------------|--------------------|---------------------------|----------|---------|-----------|-----------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
| Water content | 97.7 | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

| CS-08 (1705003-08) | | Matrix: Other | Sampled: May-04-17 14:15 | | Received: May-05-17 07:50 | | | | |
|--------------------|--------|-----------------------|--------------------------|--------------------|---------------------------|----------|---------|-----------|-----------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
| Water content | 93.8 | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |

| SFS08 (1705004-07) | | Matrix: Other | Sampled: May-04-17 15:10 | | Received: May-05-17 07:50 | | | | |
|--------------------|--------|-----------------------|--------------------------|--------------------|---------------------------|----------|---------|-----------|-----------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
| Water content | 87.1 | | | 0.5 | % | 1 | B17F015 | Jun-13-17 | Jun-13-17 |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Mid America Steel Drum, Inc.
Project Number: MASD-05-04-17
Project Manager: Jamie Paulin

Reported:
Jul-25-17 07:58

Notes and Definitions

- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded